



NATIONAL EDUCATION MONITORING PROJECT PROBE STUDY

**'NEMP administration as information and
communication technology professional development:
the ICT experiences of teacher administrators.'**

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Supervisor: *Alison Gilmore*

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The National Education Monitoring Project (NEMP) provides a professional development opportunity for practising teachers who work for a period of six weeks as administrators for NEMP. During their training week they learn to use video cameras and computers in order to implement their administration work with children.

This study uses the NEMP experience as a context within which to establish and explore the information and communication technology (ICT) backgrounds of a cohort of 85 teacher administrators. Data were collected through questionnaires of all administrators. Semi-structured interviews were carried out with ten teachers who identified in the questionnaire that they have low confidence and little experience using ICTs.

The study discusses the possible reasons for the wide range of attitudes and the discrepancies between teachers' inclinations to use or not use ICTs for educational purposes. The teachers interviewed gained considerably in confidence and confirm they experience substantial increases in their skill levels due to the NEMP experience. Some still see a number of barriers that stand between their learning through NEMP and actually employing ICTs more extensively in their classrooms. Others are able to discuss how they might use and manage ICT use in their classrooms after their NEMP training.

The broad focus of this paper is to use the NEMP professional development experience as a vehicle to:

- Establish and explore the information and communication technology (ICT) backgrounds, attitudes and prior experiences of the incoming teacher administrators
- Study the impact of the NEMP experience on the confidence and capabilities of a group of teacher administrators with low confidence and limited ICT experience and to consider the influence this may have on their classroom practice.

The provision and use of ICTs in schools is an area of intense ongoing development in New Zealand. In 2002, the government developed a strategy for schools called 'Digital Horizons

- Learning through ICT.' The strategy is to develop school ICT infrastructures, capabilities and programmes. It focuses on helping schools to extend their use of ICT to support new ways of teaching and learning. The ICT Strategic Framework for Education states that ICTs support the implementation and achievement of New Zealand's goals, priorities and strategies for education. The vision of this strategy is 'to improve learner achievement in an innovative education sector, fully connected and supported by smart use of ICT.' One of the goals of the strategy is to increase the confidence, capability and capacity from the use of ICT by all participants in the education sector.

As new forms of technology are developed and improved they impact on ways of learning and on what is important in the school curriculum. The impact of ICTs influences the underlying pedagogy of teaching and what is considered to be best teaching practice. It is therefore highly relevant to explore the ways in which teachers are learning about and adapting to the use of ICTs. It is beyond the scope of this paper to explore the research that supports the adoption and integration of ICTs by teachers and in classroom programmes. The researcher takes the position that the use of ICTs by teachers and students is an essential aspect of preparing children for their futures in a knowledge economy.

It is an integral part of the National Education Monitoring Project (NEMP) programme to provide professional development for teachers. Each year approximately one hundred teachers train as NEMP administrators.

NEMP provides a unique setting for training, practice and immersion in the use of information and communication technologies (ICTs). During training in Wellington, teachers are familiarised with the use of laptop computers and video cameras and attend technical sessions to ensure their skill level is sufficient to carry out and keep record of their work with children. After training they spend five weeks implementing NEMP assessment tasks with children. During this time they need to adapt quickly to new and varied environments, set up and organise ICT equipment, and use it effectively to provide NEMP with reliable data. Teacher administrators have unlimited access to a NEMP laptop computer and camcorder as well as continued support from the NEMP team should they encounter technical problems. They also receive feedback about how well they use the

equipment. For example, the NEMP team might suggest an administrator put the video camera closer to participants or adjust the sound levels in order to improve the quality of the replay.

Teachers are exposed to stimulating array of computer presented assessment tasks. They view and familiarise themselves with these during the one week training period. They have the opportunity to evaluate the impact and effectiveness of these tasks when working alongside children for five weeks.

The NEMP experience may well have a successful yet relatively unexplored influence on teachers' attitudes, skills and inclination to use ICTs. It may reduce the barriers that prevent teachers from becoming ICT literate and from using ICTs in their teaching practice. It may provide a window for teachers to explore the possibilities of integrating ICTs into classroom practice.

3. LITERATURE REVIEW

Backhouse (2003, p.5) suggests 'to create conditions that realise the potential of improving teaching and learning with ICT we need to examine the life of practising teachers and develop resources that address reasons and excuses, real or imagined, for slower adoption of ICT.' He notes that several ICT initiatives in England have failed to create systemic change (p.8). It may be that NEMP provides the conditions for this systemic change to occur. Teachers in Backhouse's study mention the barrier of lack of time and lack of confidence (p.6). As they work for NEMP, teachers are provided with a period of time and an intensive chance to improve their confidence through practice.

Cox, Preston and Cox (1999) show that ease of use and perceived usefulness can have a positive influence on teachers' use of ICT. They discuss that many ICT courses in England failed due to focus on technical aspects, with little training about pedagogical practices required, and how to incorporate ICT in curriculum (p.3). NEMP provides skill training and the opportunity for teachers to experience ICT being used in a pedagogically innovative and integrative manner.

While working for NEMP teachers are given unlimited access to laptops and video cameras. Falba, Grove, Anderson and Putney (2001) contend that this provides convenient access, allowing teachers to bridge barriers of time and access and to accelerate development of technical skills (pp.16-17). Edmondson (2003) also mentions laptops as a key to developing continuing skills and confidence. She contends the role of 'play' is

significant (p.7). Staff can build their own understandings without anxiety and construct their own learning paths when they have the time and access to play.

Edmondson found an advantage of school based training was that the content could be designed to be highly relevant (p.6). Staff in her professional development programme wanted skills to be relevant to their experience and to be able to use them immediately. Ideas and skills that could be transferred to class the next day were highly valued and quickly put to use. Knowles (1984 cited in Edmondson 2003, p.6) discusses the importance of adult learners being able to focus on relevant problems and finding solutions for challenging situations they may be facing in their real world setting. NEMP also addresses these needs by providing immediate transfer to the administration of tasks and a highly relevant professional setting. The need to problem solve technical challenges effectively in the real world of the administration period is essential to success. NEMP does not provide immediate transfer to classroom practice but it does provide immediate transfer to assessment tasks. It provides time working with small groups of students and time out from classroom pressures for teachers to reflect on classroom practice.

An Education Review Office Report (February 2005) recommends that there needs to be recognition of the wide variability in teacher expertise and confidence in the ICT area of the curriculum. Support and professional development need to be based on specific teacher need. It was found that while most schools provide teachers with opportunities to engage in ICT professional development activities, teachers in only 50 percent of schools had clear e-learning goals related to their teaching programmes. This suggests that the nature of much of the professional development offered to teachers in ICT does not necessarily help them to transfer ICT to classroom programmes.

Teachers in over a third of the schools surveyed reported that they found it difficult to access relevant professional development. In just under a third of schools teachers also reported they had problems transferring their learning from courses to the classroom.

In over a third of the schools teachers reported they now have increased expectations placed on them in terms of using ICTs and insufficient time to practise new skills. Unreliable ICT equipment and other technical problems create a barrier. Just under 20%

of the schools reported that their teachers lacked an understanding of the value of e-learning. There is a gap to be bridged so that teachers have a clear understanding of the underlying pedagogy and associated practical implementation of ICT use. The ability to transfer knowledge, to understand how to manage resources and students and understand the purpose of the learning is essential.

A Ministry of Education research paper, 'What Makes for Effective Teacher Professional Development in ICT?' (Ministry of Education, 2005) suggests the following reasons can be responsible for teachers not being prepared to use ICTs professionally and in the classroom:

- suspicion that ICTs don't improve teaching and learning
- feelings of already being too far behind
- not knowing how to incorporate ICTs
- lack of support
- lack of training
- lack of teacher access to equipment
- lack of time to cope
- equipment breakdown and technical problems

Prior to the administration periods the researcher contacted Terry Crooks, who leads the ICT sessions during the training weeks to discuss his perceptions of the level of ICT skill most teachers possessed. He considered there had been an upward trend in teacher skills and confidence in using NEMP related ICT equipment since the beginning of NEMP. However he felt that teacher administrators still have a very wide range of ICT skills and confidence.

NEMP provides a unique professional development model for teachers to learn about using ICTs. The use of ICTs in the NEMP experience occurs naturally within the wider professional development context of assessment practice. Therefore a study of teacher administrators' ICT experiences, while working for NEMP, may shed light on the factors that influenced teachers learning in a professionally relevant context.

The following research questions were designed to guide the study.

3.1 RESEARCH QUESTIONS

1. What are the ICT backgrounds, attitudes and prior experiences of teachers when they come to NEMP training week?
2. How do teachers with a perceived lack of confidence in the use of ICTs respond to NEMP professional development and experience?
3. Does the NEMP experience reduce barriers that prevent teachers from using ICTs?
4. Does NEMP professional development have an influence on teacher's subsequent classroom teaching practice?

4. METHODS OF INVESTIGATION

Participants

Participants were the cohort of 2004 teacher administrators during their NEMP training week in Wellington. Administrators train at two different times, in two different year groups. The Year 8 group trained from Monday 9 August until Friday 13 August. They administrated for a five week period from Monday 16 August until Friday 17 September. The Year 4 administrators trained from Monday 4 October until Friday 8 October. They administrated for a five week period from Monday 25 October to Friday 19 November.

Participants for Questionnaire

All teacher administrators from both groups were surveyed to establish a baseline understanding of the ICT backgrounds, experiences and confidence levels of the cohort.

Participants for Case study Interviews

A group of teacher administrators with low confidence and limited ICT experience were selected on the basis of survey responses for case study interviews.

The researcher intended to access a sample of between 5% and 10% of each year level for the case studies. The questionnaires were analysed and administrators were selected as case study candidates if they fitted most of the following criteria:

- have low confidence in their own ICT skills
- have low confidence about solving technical problems when they arise
- never or rarely use ICT equipment
- consider they have limited access to ICTs in their schools
- never or rarely incorporate the use of ICTs in their planning and classroom programmes
- have had little or no professional development in the use of ICTs in schools

No teacher administrators rated themselves at the lowest end on all questionnaire items. The administrators' chosen were selected due to rating themselves as having low confidence in their ICT skills and problem solving abilities and little or no professional

development opportunities. They rated themselves as a 1 or a 2 on the rating scale on these items. Most of them also rated themselves at the low end of the scale for use of ICTs for planning and classroom programmes.

The researcher approached seven Year 8 and six Year 4 administrators. Two Year 8 administrators declined to participate. One Year 4 candidate was leaving teaching at the end of NEMP. The researcher decided not to conduct this interview. No other candidates fulfilled enough of the criteria of being low in confidence and perceived skill level.

Case study interviews with five Year 4 and five Year 8 administrators were secured.

Rationale for including Administrators from both Year Levels

Administrators from both training groups were included because the researcher considered that there may be a variation in experiences, due to the fact that administrators for each intake were likely to come from different professional contexts. Teachers who administrate at Year 4 level come mainly from full primary schools and teach at around the Year 4 level of schooling. Teachers who administrate at Year 8 level teach mainly in the senior school and possibly at an intermediate or area school. On one hand these teachers are dealing with older and more independent students. Some of these students are capable of offering a high degree of technical assistance for their teachers. On the other hand senior school contexts are often organised differently to middle schools. Computer labs and specialist ICT teachers may provide a justification for some teachers to feel that ICT is being taken care of without them having to get involved or develop their own knowledge and skills. Also, teaching contexts can become quite fragmented in the senior school with students going to different teachers for different subjects. This means ICT classroom use may be piecemeal or may slip through the gaps between different teacher's programmes.

4.1 TOOLS OF INVESTIGATION

2 tools of investigation were used.

1. A Likert type questionnaire
2. Semi structured case study interviews

1. Initial questionnaire

A Likert type 9 item questionnaire was developed to be administered to all teacher administrators. [see Appendix A]

The questionnaire was administered to all NEMP administrators of both year groups present at a plenary session half way through their NEMP training week.

48 questionnaires were completed by Year 8 Administrators

37 questionnaires were completed by Year 4 administrators

The questionnaire required teachers to rate themselves on a five point scale in relation to questions about:

- Their computer skills and ICT confidence when learning about and using ICTs
- Their usage of ICTs for educational purposes and classroom programmes
- The professional development they have received and the level of resourcing in their schools

For example teachers rated the professional development opportunities they had had on a scale with 5 representing extensive opportunities and 1 representing no opportunities at all.

The purpose of the questionnaire was to:

- provide baseline data about the ICT backgrounds of the two groups of administrators
- establish whether there were any differences in the backgrounds of the two groups
- identify suitable candidates to interview about the impact of their NEMP experiences

2. Case study interviews

The case study interviews were conducted by telephone within a week of the end of the administration period. Telephone interviews were arranged at times to suit the candidates. Interviewees were

telephoned to share their administration experiences. This took the form of a semi- structured guided interview designed to:

- probe any significant experiences during the 5 week period including challenges using equipment
- question their beliefs about how the NEMP experience impacted on their skills, attitude to and knowledge about ICTs
- discuss confidence and skill levels prior to and after NEMP
- discuss their responses to the computer presented tasks
- discuss their perceptions of children's responses to the computer presented tasks
- discuss what they thought the impact of the ICT aspect of their NEMP experience might be on their classroom practice
- discuss any ICT goals, hopes, challenges and fears that have grown out of the NEMP experience
- discuss whether there was anything about the NEMP experience they would like to share with other teachers

Each interview was forty minutes to 3/4 of an hour in length. Permission was sought from each interviewee for the interview to be tape recorded. All agreed. Each interview was transcribed and the transcripts analysed around a set of common themes which related to the research questions.

4.2 PROCEDURE

The researcher visited the Year 8 administrators during their training week in Wellington. They received a brief introduction to the project at a plenary session during the training week from the researcher. They then completed the questionnaire.

The Director of NEMP Training Terry Crooks introduced the project and distributed and collected the questionnaires at one of the plenary sessions during the Year 4 training week.

Questionnaires from both groups were collected by the researcher and results collated and analysed. Case study interviews were arranged after this analysis.

Year 8 Administrators Procedure for selecting case study participants.

The Year 8 administrator questionnaires were analysed immediately after completion. The researcher selected seven candidates who had responded with low ratings for most questionnaire items. The times available to approach candidates was between training

sessions, during morning tea and lunch breaks. They were social and public sessions during which it was difficult to talk to candidates without others being aware they were being approached. The researcher attempted to talk to two of the candidates and received polite refusals to participate. Candidates seemed somewhat embarrassed to be approached. It became clear that the probable reason for this was the public nature of the discussion. Administrators were aware that those being approached were those low in confidence with ICT and there was stigma attached to this.

In response to this realisation and with the time available quickly running out, it was decided to approach the remaining candidates by way of a letter inviting them to participate and further explaining the nature of the study in an attempt to dispel any doubts and to ensure no one lost face amongst their peers during the training. This gave candidates time to think about whether they wished to continue.

The rest of the Year 8 administrators chosen for interview were telephoned after the training week and all agreed to participate in a 40 minute telephone interview at the end of the administration period.

Year 4 Administrators

After discussions with the researchers, the supervisor and Director of NEMP Training Terry Crooks, it was decided that Terry Crooks would introduce the questionnaire at the Year 4 training week at one of the plenary sessions. It was considered this would give the study more status and make it clear the NEMP management endorsed and approved of the study. The questionnaire was modified to ask all administrators whether they would be prepared to participate in a 40 minute telephone interview at the end of the administration period. All the Year 4 administrators agreed to a 40 minute interview at the end of the administration period. The researcher rang the five candidates who best fitted the criteria for interview. All five agreed to be interviewed.

5. QUESTIONNAIRE FINDINGS AND RESULTS

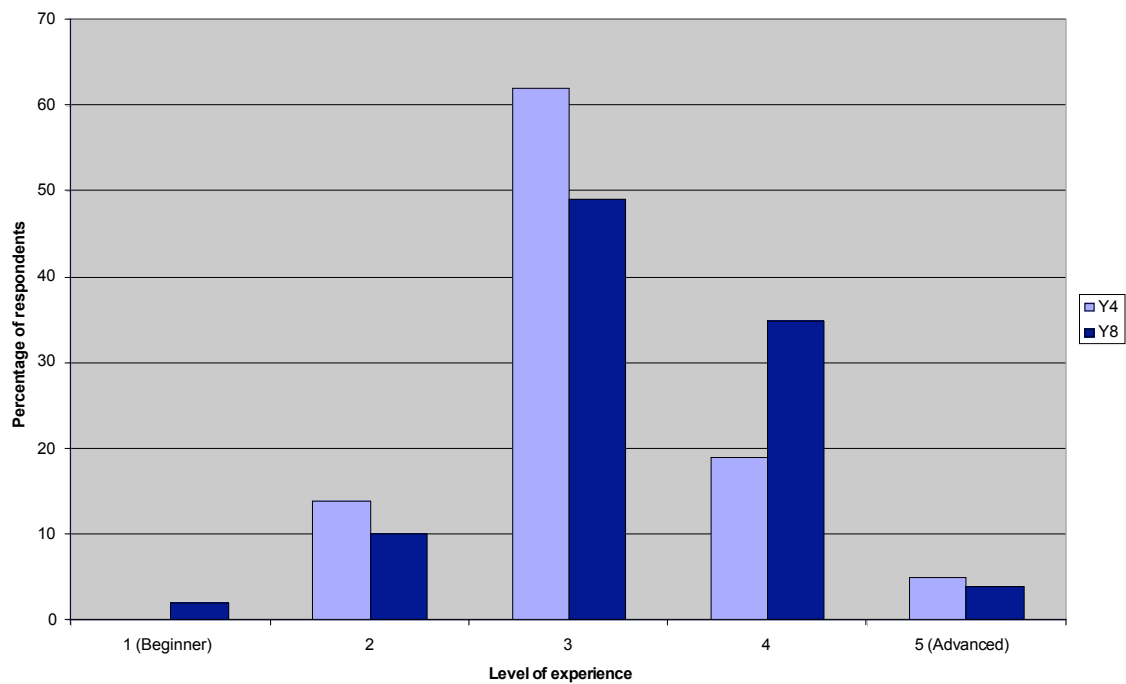
Results in this section come from the questionnaires and case study interviews and are presented in the following way:

1. In the first level of analysis the questionnaire results are presented , described and analysed. This analysis gives a picture of the perceptions, experience and confidence in using ICTs of the whole cohort of administrators. This section is presented as a series of double bar graphs. The Year 4 administrator results are depicted in light blue and the year 8 administrators results in dark blue. The two Year levels are presented separately on the graphs to illustrate the differences that emerged between the two year groups. The 9 questions of the interview are arranged under headings to give a clear picture of the ICT backgrounds of the administrators.
2. The second level of analysis includes the case study interview results. The results are presented based on the common themes that came through in the interviews. Anecdotal comments from the interviews are presented to capture the voices of the administrators and to illustrate commonalities and differences between their comments.

5.1 SUMMARY OF QUESTIONNAIRE FINDINGS

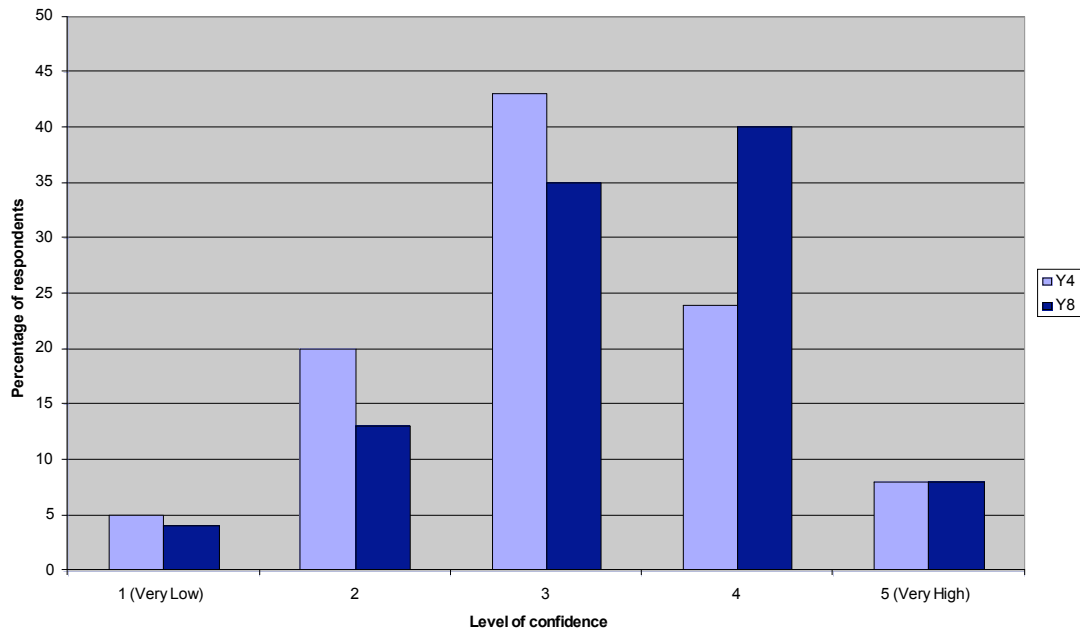
ICT backgrounds, attitudes and prior experiences of Teacher Administrators.

Figure 1: Level of experience of Year 4 and Year 8 Teacher Administrators as computer users



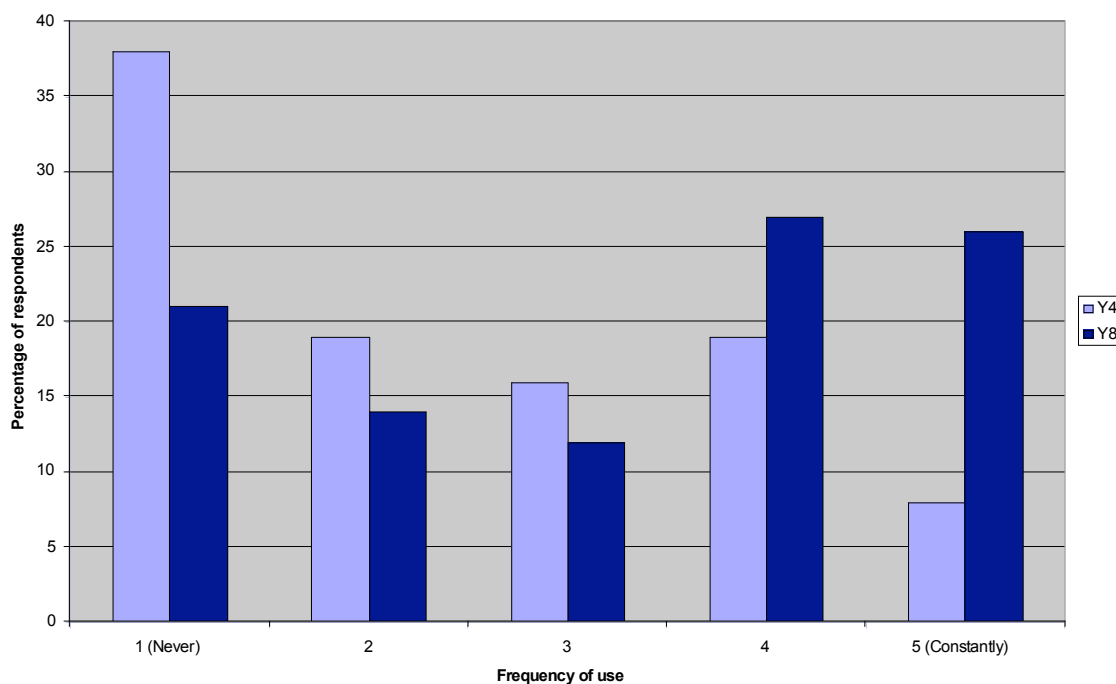
Most administrators considered they had adequate computer skills. Over a third were quite advanced to advanced users. More Year 8 administrators rated themselves in the quite advanced to advanced user category than Year 4s. A small percentage considered themselves to be just above beginner status. Only one administrator considered herself to be a beginner on computers.

Figure 2: Levels of confidence of Teacher Administrators when learning to use new technical equipment



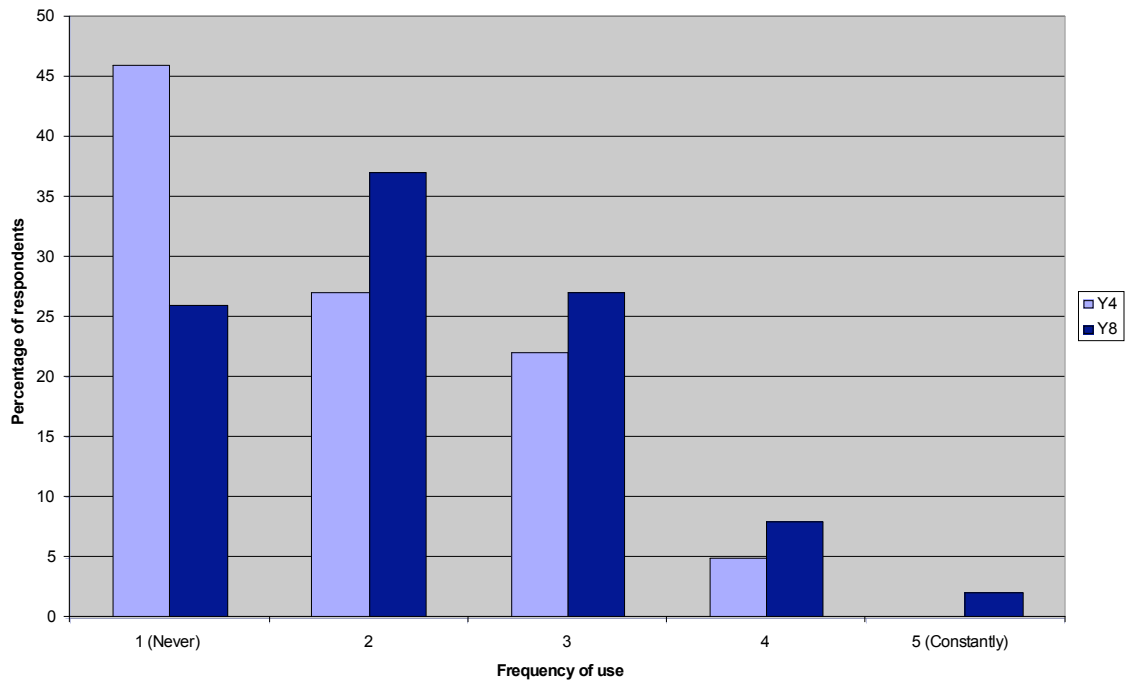
Most administrators felt adequate to very high confidence when learning to use new technical equipment such as video cameras and digital cameras. However a quarter of the Year 4s and 16% of the Year 8s had low to very low confidence. More Year 4s than Year 8s had low confidence when learning about technical equipment.

Figure 3: Levels of laptop computer use among Teacher Administrators



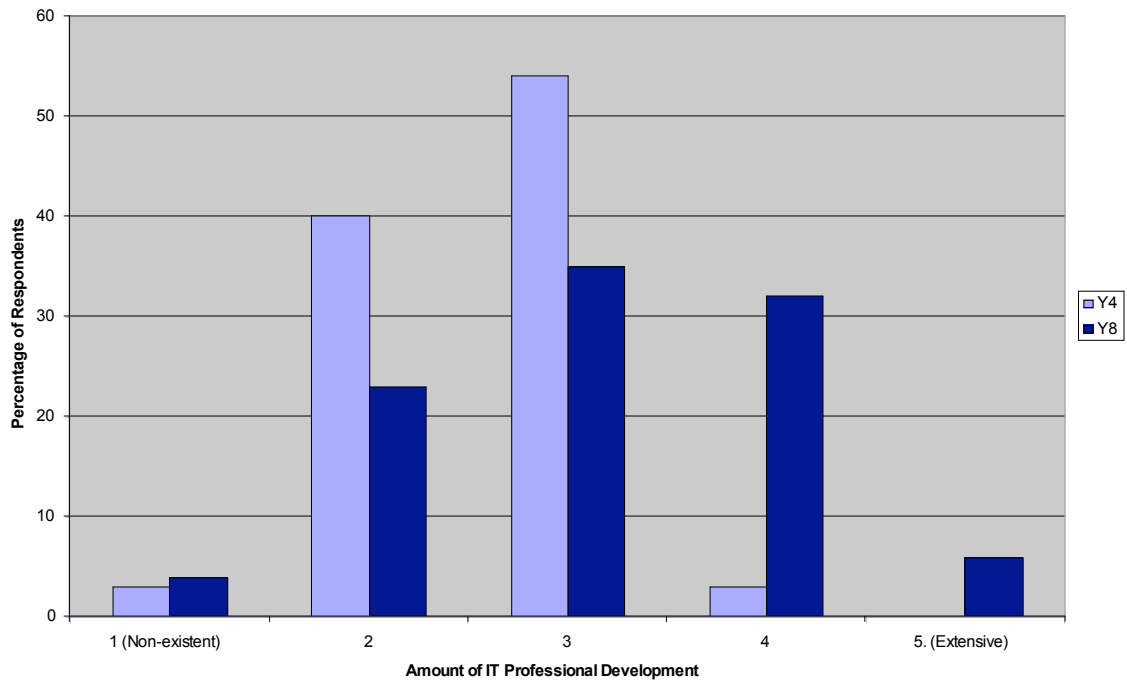
Administrators reported a wide range of opportunities to use laptops. There is considerable variation between the two Year groups in their use of laptops. Over a half of the Year 8 group constantly or nearly constantly use laptops. Just over a quarter of the Year 4s do. In the Year 8 group 35% never or hardly ever use laptops while over half the Year 4s never or hardly ever use laptops.

Figure 4: Levels of video camera use among Teacher Administrators



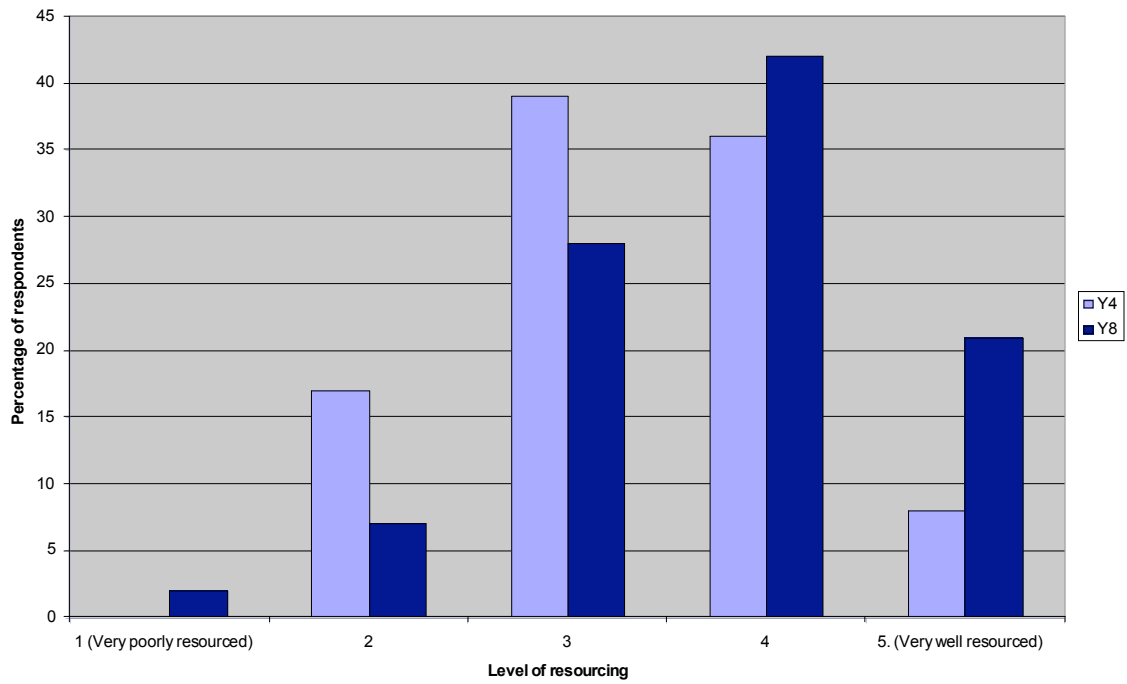
In the Year 8 group 10% of administrators use video cameras a lot while 5% of Year 4s does. Over 60% of the Year 8 group and 75% of the Year 4 group use video cameras rarely or never.

Figure 5: Levels of Teacher Administrators' professional development in IT



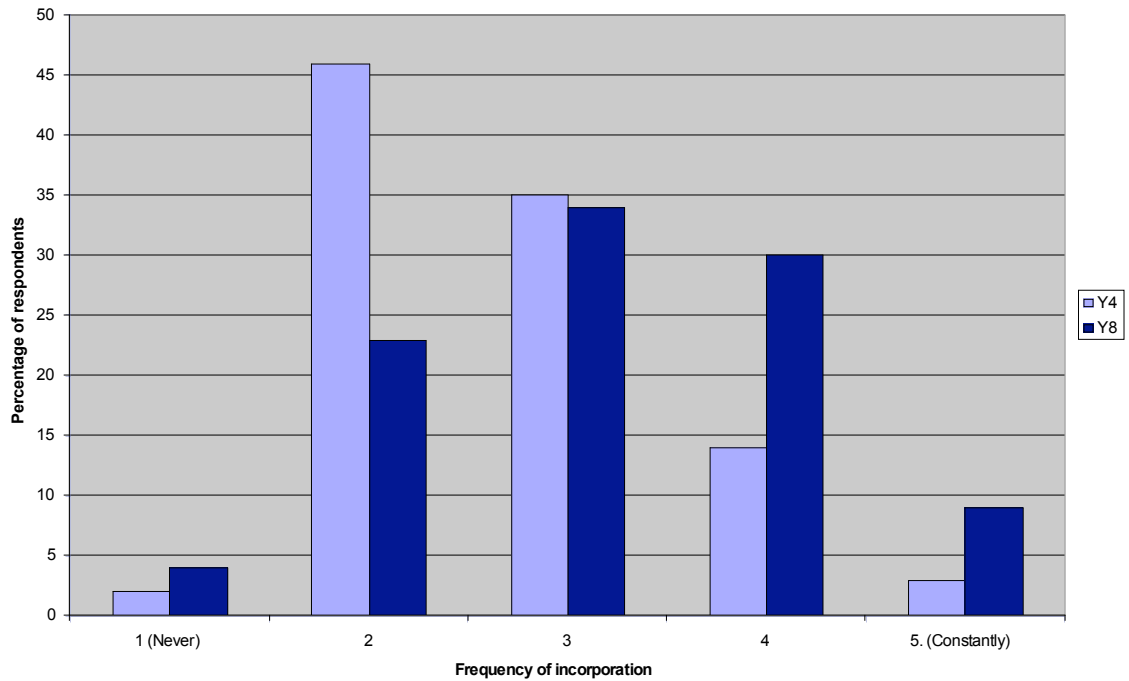
The variation in ICT professional development opportunities is large. Over a quarter of the Year 8 group and 43% of the Year 4 group reported little of no PD opportunities in the use of ICT. On the other hand 37% of the Year 8 group had had reasonably extensive or extensive ICT learning opportunities. Only 3% of the Year 4 group had had reasonably extensive PD and no one in this group reported extensive PD opportunities. There is wide variation then both within groups and between groups. A substantial number more Year 8 administrators have had reasonably extensive PD than Year 4 administrators.

Figure 6: Levels of ICT resourcing in Teacher Administrators' schools



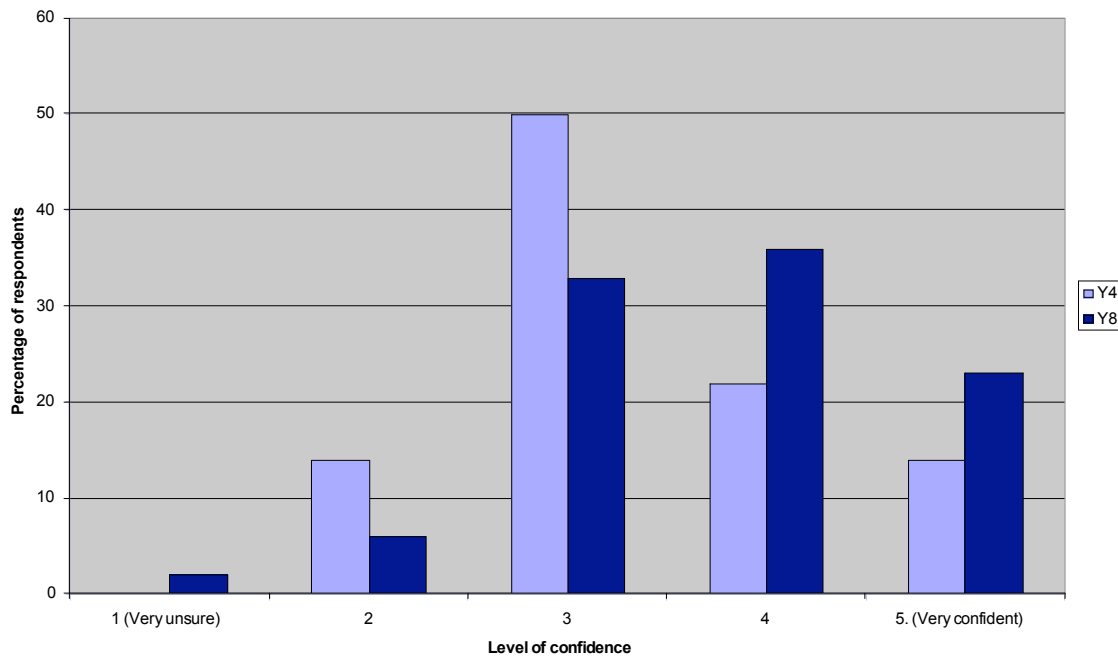
ICT resourcing in schools also showed a wide variation. Over half of the Year 8 administrators and 42% of the Year 4s had well resourced to very well resourced schools. Only 8% of the Year 8 teachers and 16% of the Year 4 teachers considered their schools poorly or very poorly resourced.

Figure 7: Frequency of incorporation of ICT into Teacher Administrators' class programmes



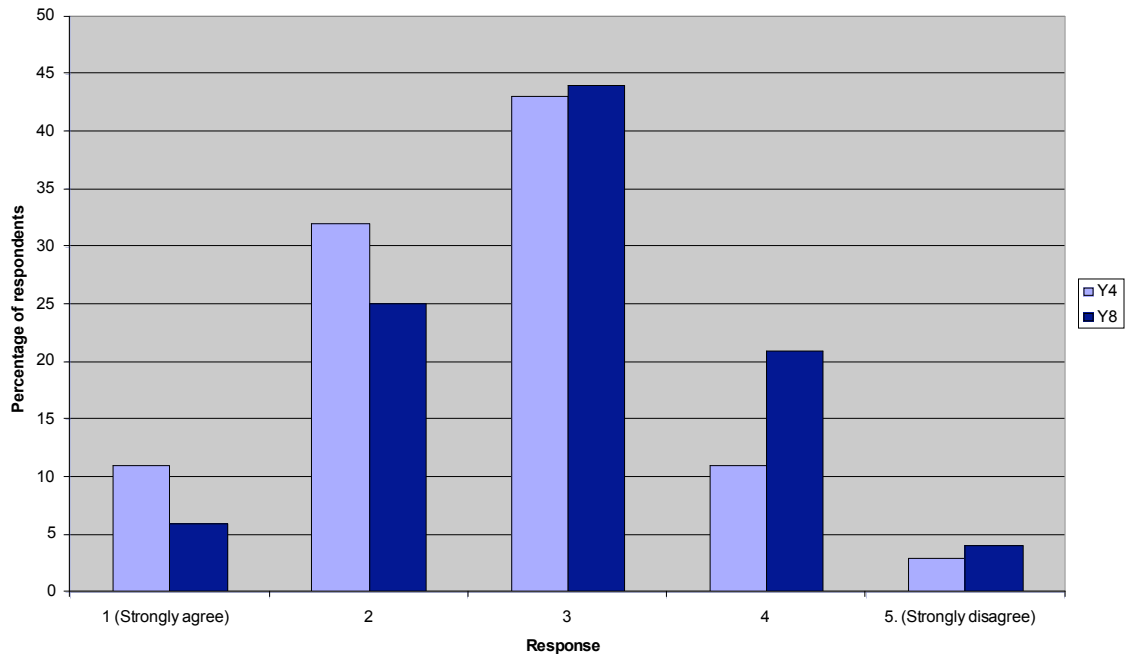
It is interesting that with so many schools adequately to very well resourced only 35% of Year 8 teachers use ICT in their class programmes and planning a lot to constantly. Less than one fifth of Year 4 teachers use ICT a lot. 25% of Year 8 teachers report using ICT hardly ever or never in their programme and a half of the Year 4 teachers.

Figure 8: Levels of Teacher Administrators' confidence in using laptops and video cameras to carry out NEMP tasks



At the time the questionnaire was implemented all administrators had undertaken training sessions on the use of laptops and camcorders for the NEMP administration purposes. A small number of each group, 8% for the Year 8s and 14% for the Year 4 group were feeling unsure about their confidence to use the equipment for the NEMP tasks.

Figure 9: Teacher Administrators' responses to the statement: "there are many barriers to using ICT successfully in the classroom"



43% of Year 4 teachers and 31% of Year 8 teachers agreed or strongly agreed with the statement that there are many barriers to using ICT successfully in classrooms. A quarter of Year 8 teachers and 14% of Year 4 teachers disagree or strongly disagree with this statement. There is a wide variation in attitudes towards whether it is easy or difficult to incorporate ICT. A significant group feel positive about the use of ICT being easy to incorporate in classrooms but a much larger group perceive there are significant barriers that discourage use.

5.2 DISCUSSION OF QUESTIONNAIRE FINDINGS

5.2.1 DISCUSSION AND ANALYSIS OF RESULTS FOR BOTH YEAR GROUPS AS A WHOLE

There is a wide spread of experience amongst the administrators in their perceived levels of experience as computer users. The majority feel they have adequate to advanced computer skills. It appears that most administrators have developed skills as computer users either through personal use or use within their schools.

Most administrators feel reasonably to very confident about learning to use new technical equipment. However with nearly a quarter of all administrators having low to very low confidence about learning to use new equipment there are implications for the classrooms of these teachers. It seems less likely that such teachers, within the context of a busy teaching day and the many professional demands placed on them, will be inclined to take the time develop their ICT understandings and embed the use of new equipment in their classrooms without extensive support.

The opportunities administrators have had to use laptop computers vary enormously across and between groups. A large group of administrators are using laptops very frequently or constantly. The fact that large numbers of both groups rarely or never using laptops means that the NEMP experience gives these teachers the chance to:

- Experience the versatility and convenience of laptops
- Develop confidence about their own ability to use laptops
- Become familiar with laptop use and bond with the idea of having one at their disposal
- Make positive shifts in their thinking
- Observe and reflect on student responses to assessment tasks involving laptops
- Consider possibilities for classroom practice

With so many administrators reporting that they rarely or never use video cameras it is clear that most administrators are unfamiliar with using camcorders and have not developed associated skills. It is also clear that few have considered the possibilities of using video cameras for educational or assessment purposes. It is unlikely that they have considered the potential for students to use camcorders to enhance their learning experiences. It is also unlikely that they have explored the option of allowing students to use video cameras for self and peer assessment or in aspects of oral or visual language, technology or social studies. The possibilities for using video cameras as an integrated part of

classroom programmes are extensive and need to be explored. Camcorders have potential to aid in creating a positive classroom climate where equipment is used equitably between teachers and students alike to create an environment where power is shared and where students take increased responsibility for their own learning.

There are wide variations in the opportunities administrators have had to undergo professional development in the use of ICTs. Very few have had extensive PD opportunities. With substantial numbers reporting they have had little to no PD in this area there are a number of implications. This suggests that these teachers have had little opportunity to develop their pedagogy to incorporate ICT use into their classrooms. It would be worth exploring the nature of the professional development that has occurred and whether it has created shifts in pedagogical thinking for teachers or whether it was mainly skills teaching. Results suggest that the PD undertaken has not strongly influenced classroom practice in most situations as so many of the administrators still report reticence or doubts about using ICT in their classrooms.

If we consider some schools have put enormous energy into developing their curriculum and models of teaching and learning to include extensive ICT use, there must be a huge lag between the practices these schools are employing and the practices occurring in the classrooms of many teacher administrators.

Most administrators considered their schools to be adequately to very well resourced with ICT equipment. What they consider to be good resourcing would benefit from further consideration and probing. It is possible that teachers consider their schools well resourced because they possess a certain amount of equipment. Many schools see the possession of ICT equipment as a point of pride. ICT possession is often used for school promotion on school web sites and in prospectus but it does not necessarily follow that this equipment is being used or that student learning is enhanced consistently because of the schools possession of ICT equipment.

On the other hand the fact that some administrators consider their schools are poorly resourced is a definite barrier to teachers in these schools being able to develop their ICT understandings and classroom practice.

It is worth noting that with so many teachers considering their schools to be adequately to very well resourced that relatively few of the administrators in these school use ICTs frequently in their programmes. It appears that resourcing is not the major issue preventing ICT from being used by these teachers. It would be interesting to further probe the reasons for this. It would also be worthwhile looking at ways in which high frequency users are incorporating ICTs. It is not possible without further investigation to consider what teachers mean when they say they use ICTs a lot. There is a big difference for example between having a networked computer available for occasional research, or a technology suite for skills teaching and students using ICTs in an integrated manner to support all aspects of their learning.

The wide spread in administrators' attitudes to whether there are significant barriers to incorporating ICT use in classroom programmes is worth further consideration. Further research would shed light on what factors contribute to this wide spread in teachers' attitudes and beliefs about ICT use. Within the scope of this study, the case study interviews serve as a way of further probing the attitudes of ten of the lower confidence administrators and the impact of NEMP on their beliefs about barriers. The extent to which the teachers interviewed made a connection between their own learning through NEMP and what they could actually do themselves and in their classrooms is of considerable interest to the aims of this research.

In terms of the administrators using laptops and camcorders for NEMP purposes it is interesting to note that a small percentage were still feeling unsure or very unsure about using laptops and camcorders for carrying out NEMP tasks, even after the NEMP training sessions and many were feeling only adequately confident. This means that the use of equipment during the administration period carries an aspect of personal challenge and the potential for significant growth in confidence should it go well. On the other hand if these individuals were to experience feelings of failure during this time the potential is there for their experience to result in a drop in confidence in their own abilities.

This is worthwhile information in terms of the case study interviews because it indicates that many administrators view the use of ICT equipment for NEMP purposes as challenging. It shows that many of the administrators, even after training, will need to problem solve and to develop skills and confidence to carry out the administration successfully.

The questionnaire part of the study has provided areas of questioning that can be further probed in the case study interviews. Responses have also provided a number of areas of interest that would be fertile ground for further research.

5.2.2 DIFFERENCES BETWEEN ADMINISTRATOR GROUPS

The results of the survey indicate some differences between the two groups of administrators. The Year 4 group consistently rated themselves more towards the lower end of the scale on all items than the Year 8 group. A substantial number of Year 4 administrators were less confident than the Year 8 group when learning to use technical equipment. This was confirmed by the fact that more Year 4 administrators report lower levels of confidence than the Year 8 group after their NEMP training in the use of laptops and camcorders. It appears that a substantial number have strong self doubt about their own abilities and capacity to use technical equipment confidently. Nearly half the year group have had little opportunity to experience the convenience and versatility of laptop computers. They have had little chance to experience that laptops can be used anywhere and are a convenient and versatile classroom tool. Three quarters of the group have had little exposure to the possibilities of utilizing a video camera as a tool for their own use or for integration into classroom programmes. Only a very

small number of the Year 4 administrators had been exposed to what they considered to be reasonably extensive professional development in ICT. None had had extensive professional development. Year 4 administrators report lower levels of resourcing in their schools with less of them considering their schools to be very well resourced than the Year 8 group. Nearly half of this group rarely or never use ICTs in their class programmes. On the other hand of the Year 8 administrators a large number of administrators report that they use ICTs frequently or constantly. More Year 4 administrators than Year 8 administrators agree or strongly agree with the statement that there are many barriers to using ICT successfully in classrooms. With a substantial number of the Year 4s agreeing or strongly agreeing with this statement, it is unlikely that these teachers are positively disposed towards incorporating ICTs into their classroom programmes.

5.2.3 FACTORS THAT MAY BE RESPONSIBLE FOR DIFFERENCES BETWEEN YEAR GROUPS

Less resourcing of the middle school area could be a factor. Hardware and software have been made more available at the upper end of primary schooling. The government has provided incentives and support to the upper primary level first. For example laptops have been more available in the senior school and were government subsidised earlier.

Schools have had so much curriculum change over the last 12 years that they have had to select their priorities. At the Year 4 level most teachers have numeracy and literacy as priorities. It seemed possible that ICT may not be seen as such an important focus for these teachers as for the teachers who teach at the senior end of the school. Professional development in other curriculum areas may have been more pressing for middle school teachers than in the area of ICT.

At the senior end of primary schooling curriculum expectations require more emphasis on research and inquiry skills and students using more sophisticated investigation processes and forms of presentation than in the middle school. Teachers and schools with Year 8 students are more likely to be aware of their responsibility to address these student needs though incorporation of ICT use.

It is possible that teachers who choose to teach in the middle school area may be different in their skills, beliefs and priorities than teachers in the upper school. Also, they may not trust younger students as readily when using expensive equipment.

Exploration of some of these possibilities would be fertile ground for further research.

6. INTERVIEWS WITH TEACHER ADMINISTRATORS WITH LOW CONFIDENCE

This section presents the case study interview results. The results are presented based on the common themes that came through in the interviews. Anecdotal comments from the interviews are presented to capture the voices of the administrators and to illustrate commonalities and differences between their comments.

6.1 SUMMARY OF INTERVIEW FINDINGS

Ten administrators took part in the case study interviews. No distinction has been made between Year 4 and 8 administrators for this part of the study as all ten participants were selected due to similar questionnaire responses about their lack of confidence and use of ICTs. These responses were regardless of their circumstances and professional contexts. The interviews were semi-structured. The researcher followed the lead of each administrator and allowed each of them to tell their story. The areas of interest that were included in each interview are identified in the Methods section. (Pg 10)

The following headings were chosen to structure the analysis and discussion of the semi structured interviews. These were the themes that emerged as common to each participant when the interviews questions were analysed for content.

1. NEMP Training Sessions
2. Use of Equipment during NEMP

3. Effect of Training and administration on Confidence Levels
4. Approach to a new piece of Technical Equipment
5. Attitudes to barriers to using ICTs in the classroom.
6. Comments about transferring NEMP Ideas to the classroom.

6.2 DISCUSSION OF INTERVIEW FINDINGS

6.2.1 NEMP TRAINING SESSIONS

During the NEMP training sessions the administrators were paired with the partners they would work with during the administration period. They were taken through the process of setting up and using laptops and camcorders to familiarize and train them about how to use them during the administration period.

Fear of not being able to learn to use technological equipment was a factor spoken of by 6 out of the 10 participants. They talked about anxiety about using equipment or low levels of technological literacy making them feel worried about their ability to cope. For example they made comments such as:

'I'm not very technologically literate really. I don't consider myself to be.'

'I'm not very experienced with ICT and I'm a slow processor.'

'When I got there and they said they were setting up the laptops and computers I thought "I can't do this!"

All ten participants found the NEMP ICT Training sessions to be well run, well paced for their needs and useful. They felt they received secure help from someone who knew what to do. All participants found the sessions user friendly and non threatening with a good balance between being shown what to do and having a go. They felt able to take risks as it didn't matter if you got it wrong. They commented in the following ways:

'I thought they were very well run. I thought Terry really knew what he was talking about. I didn't feel too concerned. He went through everything. It was well paced.'

'It was all made easy though and it was well explained and we could practice.'

'I thought it was really good being taken step by step beforehand verbally and then doing it and doing it by ourselves and by then it was fine.'

'I could follow everything he was saying, there was enough hands on, but not pressured where someone was staring at you. Very easy to follow.'

The importance of having the support of a partner was discussed by four participants. They helped each other troubleshoot:

'Working in pairs was good because if one of you got it wrong, then the other usually knew what the difficulty was.'

'Knowing that you had a partner there to help you when you got stuck was brilliant.'

'I had a really good partner and we got through quickly what we needed to do and were well set up actually.'

By the end of the NEMP training week participants felt well prepared and they knew how to backtrack if something went wrong. They were starting to gain confidence.

'I'm doing okay here. I could set it up by myself.'

'At times I thought it was a bit painstaking but in the end it gave us tremendous confidence in how we actually went and did it. I felt properly prepared.'

6.2.2 USE OF EQUIPMENT DURING NEMP

No participants experienced major problems with equipment during the five week administration period, but all experienced at least one hitch or equipment difficulty. A problem mentioned by four participants was having to set up equipment in unsuitable environments. Some had to shift equipment so that rooms could be used for other school commitments.

'A challenge was being in some really confined space - getting the camera in a position to get all the children in.'

Two participants spoke of practising at home prior to the first administration to check they were okay with setting up equipment unaided. Three discussed arriving in plenty of time to carefully set up equipment by following NEMP procedures. Five mentioned being slower at the start and getting quicker as time went on. All felt they gained confidence as time went on through the practice involved. Most mentioned working with their partners if problems occurred or spoke in terms of 'we did this' or 'we tried that.'

'We'd check with each other and make sure we had it right. If we couldn't get something to work we'd say "what about this?" but after the first week we had it all sussed.'

'We got the instruction book out and realised we were okay. We always did a sound check and used each other. After the first week I realised I could do a sound check on my own.'

All followed practised procedures and many read the manual to troubleshoot. All felt well supported by the NEMP team but preferred to try to sort out problems themselves.

Trying to troubleshoot early on led to more anxiety than later in the administration period. For example:

'The first day I panicked because my speakers wouldn't work and that just threw me. It was okay though because we rang Dunedin and they sent another cord. If that had happened in the fifth week I would have known what to do but in week one I wasn't very confident yet.'

The teachers interviewed who had problems later in the five weeks handled their problems more calmly:

'At one school I had the computer in one plug and the video camera in another and I didn't realize. I hadn't switched the computers power point on. The computer started to go to sleep and I was thinking 'what is going on here?' So I got out the book and traced the problem back and got it going again.'

'One day I plugged my computer into the wall and forgot to switch the switch on and got a warning I was running out of battery. I realised straight away what to do. I had a problem with my video camera towards the end of the last week. I was reasonably calm by then and I tried it again in 5 minutes and it worked.'

6.2.3 CONFIDENCE LEVEL DEVELOPED THROUGH NEMP

All ten interviewees reported that they became more confident users of ICTs through the professional development provided by NEMP for some common reasons. Interviewees mentioned:

'I had some self doubt around computer use etc. I was worried prior to NEMP about the technical side of it. I had a wall up and NEMP showed me that I can do it and it is not a problem at all. I had always avoided IT and chosen other professional development options and I had become a bit scared of it all.'

'Having to use it every day built my technology self esteem. I don't think of it as for experts now. Anyone can do it. I had always compared myself to other people who knew a lot. NEMP gave me confidence.'

'I know more about all the little bits of equipment needed to make a camcorder work. I know how to fit them all together. I had decided not to take the Ministry of Education provided laptop that was to be provided when I got back to school but I have changed my mind now.'

'I was stressed out and nervous in the first week but once I was into it my confidence grew. I became more willing to have a go. I am more confident to solve my own problems now with my own laptop because of what I learned on NEMP.'

6.2.4 APPROACH TO A NEW PIECE OF TECHNOLOGICAL EQUIPMENT

Seven out of the ten participants reported that they would now approach a new piece of technological equipment quite differently than before their NEMP professional development.

'I'd go about it differently. I'd be thinking, when I used a camcorder I did this. I'd be trying to link it to the way I used the camcorder. I'd be thinking, they are similar. I'd read the instruction book but I'd have a practical session even if I didn't know what I was doing.'

'I think my attitude has changed. Instead of thinking it was too hard and I needed someone to help I'd have a more 'can do' attitude. I'd be inclined to have a go now. I'm still a manual person but I'd look for visual cues too.'

'Before I would have thrown my hands up and left it. Now I would have a go at making it work.'

Two of the interviewees felt they would still approach a new piece of equipment the same way:

'I wouldn't be much different.' I need a long time to work things out or I can fluff it. I taught myself how to do texting on a cell phone.'

6.2.5 ATTITUDES TO BARRIERS TO USING ICT IN THE CLASSROOM

Attitudes to whether ICT enhances or can detract from the teaching and learning process varied. Three out of the ten interviewed said they had always felt positive about the impact the use of ICTs can have on classroom learning:

'It presents information to children in a more user friendly way and gives them an incentive to learn.'

'I see the use of ICTs as a tool of our time. I'm excited by its use and think I should be getting children on board with usage.'

Three out of ten had reservations about the impact of trying to incorporate ICTs in to their classrooms and planning:

'If you have technical problems it can cut into time for other things with the class. It is risky if you are not on the ball.'

One interviewee found the computer hard to use in the classroom. She finds it hard to manage. As she has junior children she prefers to use the computer as a tool and takes them to the computer suite for group skill learning.

Five of the ten interviewees are more positive now about possibilities of using ICTs than prior to their NEMP training:

'Before NEMP I would have agreed with the statement that ICTs detracted from teaching and learning because ICTs are hyped up to do things they actually don't do. I have been influenced by the NEMP tasks on computers. I hadn't seen this kind of thing available in any other school. Now I can see possibilities for constructive use.'

Another interviewee disagreed that there were barriers before she did NEMP because she had seen internet sites that enhanced literacy. She felt that the internet had opened the world up. After doing NEMP she had thought about a lot of things. She has been reflecting about what she could incorporate from NEMP into her classroom:

'I would have agreed before NEMP that ICT detracted from teaching and learning but I think I will use it quite freely now. It has been really good for my own learning.'

The comments about transferring ideas gained from NEMP and ICT use into classrooms provided interesting information.

Six of the ten interviewed indicate by the nature of the comments that while they have improved their own skill levels and developed more confidence in using ICTs they are still facing challenges in their thinking about how it can be utilised for classroom use. Some of the barriers were exposed from this area of questioning.

6.2.6 TRANSFERRING ICT AND NEMP IDEAS TO THE CLASSROOM

This question was central to the purpose of the study. One of the criticisms of ICT professional development for teachers is that teachers are unable to transfer their learning to their classroom practice.

The responses of teachers interviewed indicate that they fall into two groups. Seven of the ten interviewed indicate that post NEMP they still face significant barriers to adopting ICT use in their classroom programmes.

The group facing barriers to using ICTs in their classrooms

Of the group who still felt barriers existed to deter them from transferring their learning about ICT to the classroom the following barriers emerged from the interviews:

- The pressure of other professional development contracts
- A lack of time to consider and organise ideas
- A lack of understanding about how to transfer ideas in a practical sense
- A lack of understanding about classroom management and pedagogy that renders them unable to use ICT effectively within the programme
- The need for outside input and modelling
- Limited resourcing
- A need for relevant professional development
- The need for ongoing support and technical help

One Year 8 administrator spoke of 'feeling overwhelmed by other PD contracts.' She had picked up some ideas from NEMP such as getting children to do assessments straight on to a computer, but didn't know how to set this up for herself. NEMP had made her think about the use of videos as a stimulus but she didn't feel she had time to organise this or that she had the computer skills required.

Another felt there was 'some good stuff' in the NEMP material. Prior to NEMP she had been aware of other teachers she knew using computer programmes such as hyperstudio in their classrooms but when she asked them 'how they used it' they were unable to explain. She suspected they didn't really use it effectively.

Another administrator uses a classroom computer for research only because there is only one set up. She acknowledges that some young people do wonderful things with computers.

Another had the barrier prior to NEMP of not having seen any good ICT ideas for classroom. NEMP ideas had got her thinking about possibilities for classroom use but she was unsure how she might make these ideas happen in a practical sense.

The group who were able to articulate their ideas for classroom use

The other group of three were able to articulate their ideas clearly. They had more positive and practical ideas about the use of ICTs in classrooms.

The differences in the way these teachers spoke highlighted the following possible differences in thinking. These themes were not common to all three teachers but included:

- A can do attitude
- Being prepared to bring in outside support at their own initiative
- Taking on challenges and being prepared to risk take with new ideas

One had used considerable initiative prior to NEMP to incorporate ICTs in her technology programme. She had the awareness of good practice to take notice of 'every assessment idea from her NEMP experience and talked knowledgeably about these ideas and how she might utilise them. Her conversation about her classroom programme prior to NEMP indicated a sound knowledge of good pedagogy and the ability to take risks and try innovative ideas with her students. Although she lacked personal confidence in her own ICT use she had managed this by:

- Actively seeking support from the local college of education
- Involving her class in a technology competition that required extensive video use as part of the assignment (risk taking)
- Considering video cameras and players as wonderful tools (positive attitude)

- Able to articulate the educational purposes of ICT and ideas for achieving these purposes e.g. children planning, performing and recording their work and using ICTs for assessment purposes

Another had some awareness of good ICT practice in classrooms due to some other teachers at school having good ideas. She felt NEMP had helped her feel further down the track with her skill level but not necessarily in knowing what to do with children from her NEMP experience. Nevertheless, she felt she would be able to incorporate ICTs quite easily now.

She was able to discuss ideas for transfer to her classroom in a practical sense. She could see strong possibilities for use of video cameras and digital cameras. She spoke of using them in the curriculum areas of oral language, the arts and for follow up work after field trips. She was able to discuss the purpose and benefits of ICT use for children's learning. She was considering:

- Children assessing their own oral language work,
- Children planning, performing and recording their work,
- Children getting a better idea of where they could improve (assessment)
- Children using ICTs to follow up with flowcharts and activities,
- The capacity to communicate with and involve parents through ICT presentations

Only one of the interviewees had been a part of an ICT cluster contract. These Ministry of Education funded contracts are being progressively offered to schools. They were initiated as part of the New Zealand Ministry of Education's ICT Strategy released in October 1998. The model of professional development is that the whole staff is involved, lead teachers provide support, the emphasis is on teachers making shifts in their pedagogical understandings and in class modelling and support is offered. This interviewee had seen attitudes to ICT use in her school change quite radically. One outcome of the contract had been teachers seeing how things could be set up in a practical sense. She felt NEMP for her had further aided her journey towards classroom ICT use by:

- Demonstrating ways of organising and using ICTs and assessment ideas in the classroom
- Shown her possibilities for using particular NEMP ideas that appealed to her.
- She would like to see NEMP assessment tasks available in a ready to use package as she could see huge potential for the use of the information NEMP gathers.

6.3 ANALYSIS OF INTERVIEW FINDINGS

Interviews confirm that during the NEMP training week administrators were able to learn in a non threatening environment. They had secure, easy to follow instructions. They had tutor and peer support. They had the chance to have a go and a good balance between instruction and free learning. They felt more confident about their abilities to use the equipment by the end of the sessions even though six out of ten expressed fears and anxiety prior to undertaking the workshops. There was still an aspect of slightly anxious anticipation of the administration period but a feeling of confidence about facing the challenges ahead.

Partners worked together during the five week administration period. They took the time to set up and check equipment. Interviewees felt well supported by their partners and the NEMP team. They tended to follow NEMP procedures and the manual provided if things went wrong. They had to adapt to different and sometimes difficult environments. This in itself requires some troubleshooting and systematic thinking. Some practiced first to ensure they felt confident. Most were tentative in the first week but improved. Over the 5 weeks they learned to troubleshoot. They gained speed and confidence through the practice involved.

All interviewees reported that they became more confident. One mentioned that prior to NEMP she always asked someone else for help when faced with technical equipment. Being in foreign environments the administrators had to learn to solve their own technical problems and have realized they are quite capable of doing so. The opportunity to practice has built confidence and familiarity with equipment. The interviewees are more likely to have a go themselves now and have more technological self esteem. They don't see dealing with technical equipment as something for the experts any more.

Two interviewees don't feel they would approach a new piece of equipment any differently now than prior to NEMP. One says she takes a long time to learn to use a piece of equipment and she feels she can easily 'fluff it up.' Another would still employ her previous strategy of asking others to work out how new equipment worked. The other 8 interviewees report that when faced with a new piece of equipment now they would have a go. They would read the manual, look at the equipment and try to nut it out for themselves. One talks about an attitude change to a more 'can do' attitude. Another talks about being able to transfer knowledge and confidence developed from one piece of equipment to another. She would be trying to make links between what she knew about other pieces of equipment and what this piece of equipment was like. One interviewee speaks about being ready to have a go with the new digital cameras at school now. Before NEMP she wouldn't have. Another had resolved prior to NEMP not to accept a laptop that was to be provided for her at her school. After NEMP she felt more positively disposed and wanted to accept it and use it.

Four interviewees totally disagreed with the suggestion that ICT can detract from good teaching and learning. They believe ICTs are tools for enhancing learning and an incentive and stimulus for children. They spoke of the capacity of ICT to help students access to the world and as a tool of our times. One of those interviewed hadn't considered whether ICTs detracted from or enhanced good teaching and learning. She considered this was due to a lack of personal experience in use of ICTs. Three of those interviewed mention that the NEMP experience has changed their attitudes. They can now see possibilities for use due to seeing some good examples of how ICT might be used for learning. One interviewee mentioned she is now ready to use ICTs quite freely because of the influence of NEMP. One interviewee still believes that ICT use can detract from successful classroom practice. She teaches in the junior school and finds computers, for example, hard to manage with little children. This teacher makes an effort to use ICT by visiting the computer room which provides a structured environment. Six of the ten interviewed indicate by the nature of the comments that while they have improved their own skill levels and developed more confidence in using ICTs they are still facing challenges in their thinking about how it can be utilised for classroom use. Some of the issues they consider to be barriers were exposed from this area of questioning.

7. DISCUSSION OF FINDINGS

Teachers came to NEMP administration with a wide variety of backgrounds, attitudes and capabilities in relation to ICT use both personally and for educational purposes. Most administrators considered themselves to have adequate to advanced computer skills and were confident about learning to use new technical equipment. A significant minority has low confidence and it seems they would be unlikely to use ICTs in their classrooms because of this.

The use of camcorders was not well established among the group. The use of camcorders for educational purposes was an unexplored possibility for most. NEMP provided an opportunity for teachers to consider this possibility. Of those interviewed, one spoke of the potential she now saw for incorporating camcorder use into her classroom programme. She had a clear understanding of the potential, purpose and educational contexts within which this could be used to enhance learning. Others seemed less able to make links to how camcorders could be used for educational purposes.

The study supported the ERO Report (2005) finding that 20% of schools report their teachers lack an understanding of the value of e-learning and the findings of Backhouse (2003) that many of the ICT professional development opportunities that teachers have had to date do not create systemic change. Many of the teacher administrators who were surveyed were not using ICTs in their classroom programmes to any great extent, despite adequate to extensive resourcing and sometimes quite extensive professional development opportunities. Other administrators in this study have not had opportunities to take part in ICT professional development.

A large group of all the administrators rarely or never used ICTs in their classrooms. Many of these teachers have had quite extensive professional development. This confirms that many of the administrators have difficulty transferring their learning from course content to classroom practice. A substantial percentage of administrators report reticence or doubts about using ICTs in their programmes. The survey also supports the ERO (2005) finding that teachers in just over a third of schools find it difficult to access relevant professional development.

Teachers with a perceived lack of confidence in the use of ICTs made big gains in confidence and developed a more positive and 'can do' attitude through their NEMP training. Results confirmed that the NEMP experience provided a useful model that catered for many teacher needs in ICT development. Some of these features are:

- Teachers are immersed in an intensive and concentrated professional experience
- They receive appropriate and timely technical backup and advice.
- Interview results confirmed that all those interviewed felt they receive skill training that was well paced and relevant to their needs.
- They saw the direct relevance of NEMP training to the educational context they apply it to i.e. the administration period.
- They valued the support of a colleague alongside them at all times. Many teachers do not have this in their school contexts. Teaching can be a very isolating experience once a teacher is the only adult in a room full of children. Results confirmed that all those interviewed appreciated this back up and on site professional support. The implication for professional development is that such collegial support is a worthy factor.
- Administrators worked with small groups of children which gave them the opportunity to closely observe their reactions and capabilities with the ICT presented tasks.
- As evidenced by the interviews the necessity to problem solve was an essential part of applying the ICT skills learned and practised while training. After the training period most of the teachers interviewed were tentative about the challenges ahead and their abilities to handle them. By setting up technical equipment and working through any problems that occurred the interviewees became aware that they had the capability to do so. This confirms the contention of Knowles (1984 cited in Edmondson 2003, p.6) that adult learners benefit from being able to focus on relevant problems and find solutions for challenging situations.
- Teachers have time to concentrate and consolidate their own learning with ICTs due to time out from the classroom.

- Teacher responses indicate that they reflect on their teaching practice during NEMP. They can take a breather from the classroom and concentrate on aspects of their practice such as ICT use without the usual multitude of tasks interfering with their thinking.
- During the NEMP administration teachers have fewer balls in the air and less ongoing responsibility. They are able to consider and trial different ways of doing things.
- Because they repeat the same tasks, they have the chance to consolidate their learning without being accountable for a class of children and school responsibilities. For example, making mistakes doesn't impact long term on their teaching or children's learning.
- The need to problem solve in relation to ICT situations forces low confidence teachers to utilise their own thinking and abilities.

NEMP provides 'a defined period of time' for teachers to be able to see the big picture educationally rather than be immersed in the usual culture of business.

Falba, Grove, Anderson, and Putney (2003, p.17) consider unlimited access to ICT equipment allows teachers to bridge barriers of time and access and that this accelerates the development of technical skills. This contention is also supported by this study. The teachers are using ICT equipment continuously throughout the day, every day for five weeks. The huge gains in confidence that the interviewed administrators report are likely to be largely because of the continuous access and use during this time. They have a relevant, professional purpose and they are putting their learning to immediate use. Edmondson's (2003, p.7) contention that worthwhile ICT professional development allows 'time to construct learning pathways' is also supported. She emphasised the benefits of school based training as the content is highly relevant (p.6). Similarly the content of NEMP ICT learning is highly relevant to the tasks performed but teachers can also process what they learn before they consider how they might apply some of their learning back in the classroom. In line with Edmondson's thinking they have the opportunity to focus on immediate transfer to professional tasks in a relevant setting.

Results support Cox, Preston and Cox's (1999) research that the NEMP experience allows teachers to immediately apply their learning to a relevant practical situation. Also those who have not had opportunities to update their pedagogy are exposed to pedagogically up to date assessment tasks.

Backhouse (2003, p.6) contended we need to address the reasons 'real or imagined' for slower adoption of ICT by examining the lives of practicing teachers. This study has allowed for some examination of the teaching lives of the interviewed teachers. They had the opportunity to discuss their thinking and experiences about ICT use both prior to and after NEMP. The interviews indicate that there are many barriers inhibiting teachers' use of ICT. The barriers are different for different teachers but as Backhouse found, a lack of time is a common issue, as is a lack of ongoing support (p.5)

The barriers outlined in the Ministry of Education paper 'What makes for Effective Teacher Professional Development in ICT' (2005) are all barriers confirmed by the survey findings. Survey results indicate that some of the teacher administrators are suspicious that ICTs don't improve teaching and learning, many feel hampered by a lack of support and training and others mention the lack of time to cope. Many are unsure how to incorporate ICTs for educational purposes. Issues of classroom management are a concern for some in the study. Equipment breakdown and technical problems have been a source of frustration and inhibited teachers' future efforts.

This study also supports Backhouse's findings that a lack of confidence is a real barrier for some teachers using ICTs. The NEMP experience provides an intense opportunity for teachers to develop confidence with using ICTs. All the teachers interviewed had developed a much higher level of skill and a more positive and can do attitude to using technological equipment. Seven of those interviewed spoke of their increased awareness of possibilities for ICT use with children but still saw significant barriers to actually transferring their knowledge to their classrooms to any extent. Three of those interviewed appeared to have developed their understandings well enough to feel enthusiastic and capable about using ICT equipment. They were able to talk about the types of things they would now do with children, how they might implement their ideas and what the educational purposes and benefits would be. These teachers appeared to have a more

comprehensive and clearer picture of what ICT might be used for and how it might be used than their counterparts.

It is likely that the gains from the NEMP experience of the lower confidence administrators are greater than those who have come to NEMP with high confidence and more ICT experience. The lower confidence teachers experience a greater degree of challenge, skill building and problem solving than those with more skill and experience.

8. CONCLUSION AND RECOMMENDATIONS

The NEMP experience provides teachers with a defined period of time to consider their teaching practice and an intensive opportunity to improve or consolidate their use of ICTs. Teachers receive skill training and immediately apply this knowledge to a professionally relevant context. They are able to practice and consolidate their learning with the support of a partner, good technical equipment and immediate back up if needed. Teachers repeat the tasks with different small groups of children. This provides an opportunity to consolidate learning. They need to problem solve to adapt to various contexts and situations that arise. As a result teachers with low confidence develop their skills, confidence and awareness of the use of ICTs.

The survey of all administrators established that there are some differences in the perceptions of the two administration groups. Further research would be pertinent to establish what factors might cause these overall discrepancies in confidence, ICT use, professional development opportunities, school resourcing and classroom use of ICTs.

Three of the teachers interviewed were able to talk clearly about how they might transfer the knowledge and confidence they have gained during NEMP to their classroom practice. They appeared to have the educational know how to understand how ICTs might be managed, integrated and utilized for sound educational purposes in their classrooms.

The other teachers interviewed were less likely to transfer the knowledge they had gained to their classroom practice because they saw considerable barriers still existed. They were unable to see a clear path enabling them to transfer their learning to actually using ICT for teaching and learning purposes. They spoke of a lack of time, know how and a lack of user friendly ideas that they could pick up and implement. Some spoke of the pressure of other professional development and classroom management difficulties. It appears that NEMP for these teachers has helped them see possibilities and develop awareness but a gap still exists between what they have learned and what they feel able to transfer to their classroom practice.

It would be interesting to compare the backgrounds, educational contexts and experiences of the teachers who could speak clearly about classroom use, with those who saw barriers to probe why they may have been better able to make more meaningful connections between their learning and transfer to classroom practice.

This study would benefit from follow up interviews after interviewed teachers had returned to their classrooms for a period of time. Such extension of the study would give a better picture of the challenges that face teachers and would further pinpoint the issues that make it difficult for teachers to use ICTs in classroom programmes. It would also give a fuller picture of the impact NEMP professional development has on future teaching practice.

There are a number of implications for developing further professional development models for use of ICTs resulting from this study. Teacher needs must be taken into account rather than a blanket course of study and skill building being provided. Teachers need to develop personal confidence, have technical and peer support and learning that is relevant to their professional context and daily lives. There needs to be an element of problem solving in their learning. They need learning that helps them become more aware of how ICT use requires changes in thinking about what teaching and learning is all about. They need freely available resources. Teachers are too busy to fully consider and reflect on their current practice. They need time to reflect on their practice. Most of those interviewed were still unable to see what the use of ICT in their classrooms might look like after NEMP. They were unsure how ICT use might be organized and what the educational purposes and outcomes would be. Classroom modeling of what is possible could be very useful in helping them transfer their own learning to their classroom practice.

It would be worth exploring the nature of the professional development that has occurred for these teachers. Results suggest that the ICT courses undertaken have not strongly influenced classroom practice in most situations as so many of the administrators still report reticence or doubts about using ICT in their classrooms. Quick fix courses are unlikely to lead to systemic change. There is a long time period involved in teachers making shifts in their thinking and changing their practice accordingly.

The questionnaire part of the study provided areas of questioning that were further probed in the case study interviews. Responses have also provided a number of areas of interest that would be fertile ground for further research.

Few teachers have considered the possibilities for using video cameras as an integrated part of classroom programmes. The possibilities for using ICT equipment such as video and digital cameras are extensive and need to be explored. Such equipment has the potential to aid in creating a positive classroom climate where equipment is used equitably between teachers and students alike. In such an environment power is shared and this leads to students taking increased responsibility for their own learning.

Possession of ICT equipment is often used for school promotion on school web sites and in prospectus but this does not ensure that this equipment is being used or that student learning is enhanced. The fact that resourcing is not the major issue preventing ICT from being used by many of the teachers surveyed deserves consideration. It would be interesting to further probe the reasons for so few teachers in well resourced schools use ICTs a lot. It would also be worthwhile looking at the ways in which high frequency users are incorporating ICTs. This is not possible without further investigation to

consider what teachers mean when they say they use ICTs frequently or constantly. There is a big difference for example between having a networked computer available for occasional research, or going to a technology suite for skills teaching and students using ICTs in an integrated manner to support all aspects of their learning.

Further research would also shed light on the factors that most contribute to the wide spread in teachers' attitudes and beliefs about ICT use.

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APPENDIX A: ICT QUESTIONNAIRE

NEMP Probe Study

Information Communication Technology (ICT) Questionnaire

Name: _____

For each question please circle the appropriate number:

- | | | | | | | | |
|----|---|------------------|---|---|---|---|-----------------|
| 1. | As a computer user I would best describe myself as: | <i>Advanced</i> | | | | | <i>Beginner</i> |
| | | 5 | 4 | 3 | 2 | 1 | |
| 2. | My confidence level when learning to use new technical equipment (eg: | <i>Very High</i> | | | | | <i>Very Low</i> |
| | | 5 | 4 | 3 | 2 | 1 | |

digital cameras &
laptops etc.) is:

3.	I use a laptop computer:	<i>Constantly</i>					<i>Never</i>
		5	4	3	2		1
4.	I use a video camera:	<i>Constantly</i>					<i>Never</i>
		5	4	3	2		1
5.	The professional development I have had in using ICT has been:	<i>Extensive</i>					<i>Non-existent</i>
		5	4	3	2		1
6.	I would describe the ICT resourcing in my school as:	<i>Very well resourced</i>					<i>Very poorly resourced</i>
		5	4	3	2		1
7.	I incorporate classroom use of ICT in my programme and planning:	<i>Constantly</i>					<i>Never</i>
		5	4	3	2		1
8.	In relation to using laptops and video cameras to carry out NEMP tasks, at present I feel:	<i>Very confident</i>					<i>Very unsure</i>
		5	4	3	2		1
9.	The are many barriers to using ICT successfully in classrooms:	<i>Strongly disagree</i>					<i>Strongly agree</i>
		5	4	3	2		1

APPENDIX B: SUMMARY OF INTERVIEW RESPONSES

A summary of each participants comments are included as this question is the most relevant to the overall purpose of the study. Interviews were analysed for common themes and points of difference. Comments made during interviews are included as narrative examples of administrator comments.

Y8 Participant 1

- It's all very well having technology but how do you use it?
- Picked up from NEMP the use of videos as a stimulus
- Also getting children to do assessments straight on to the computer but doesn't know how to set this up for herself
- Feels overwhelmed by other PD contracts. Liked a particular idea but wouldn't have the time to organise it or skills to put it into the computer

Y8 Participant 2

- Talks about programmes such as 'hyperstudio.' Other teachers had told her it was good but then couldn't explain how they used it
- Considered teachers need outside input and then you use it put it fades off
- There is good stuff but it is extra. It is something I can eliminate

Y8 Participant 3

- Computers have been used for research because there is only one set up
- Knows some people do wonderful things with computers. Young people who will find any reason to use them but doesn't know how to do so herself as not brought up with them

Y8 Participant 4

- Had not seen any good classroom ICT ideas before NEMP
- NEMP ideas got her thinking about possibilities for classroom use

Y8 Participant 5

- Had contacted College of Education for support
- Had used video cameras and worked with her class in a technology competition.
Has been keen on technology use prior to NEMP involvement
- took notice of every assessment idea from NEMP experience
- sees video camera and player as wonderful tools
- had developed many good ideas of her own initiative before NEMP

Y4 Participant 1

- has wanted to learn more about ICT use but has not had opportunity
- no PD but has worked on her own skill levels
- has had no help with ideas for using ICT with children
- had not thought of using ICT for assessment purposes
- would be good to use in classroom but hard to generate

Y4 Participant 2

- ICT contract at school has changed attitudes quite radically.
- teachers seeing how they can set things up
- NEMP has aided this process by demonstrating ways of organising and using ICT and assessment ideas in the classroom
- saw possibilities with a NEMP task about 'news items'
- some NEMP computerised assessment tasks she could see would be useful if available as a package. Could use computer to support music programme
- can see huge potential for schools to use the information that NEMP gathers. Sees NEMP results as underutilised

Y4 Participant 3

- school has had ICT advice that nobody could understand
- NEMP assessment tasks that were recorded on video had stimulated her interest.
Could imagine using videos etc as stimulus

Y4 Participant 4

- sees transfer to classroom programmes as a real problem. Doesn't have the ideas about how to get it working in her programme
- has picked up from NEMP that she could use a video camera in class
- had seen the benefits of some of the music and reading tasks e.g. the animated one
- but you would have to get someone to set it up for you

Y4 Participant 5

- feels further down the track with own skill level than in knowing what to do with children
- some people at school have good ideas
- has seen strong possibilities for use of video cameras with children
- would now love to use digital camera more
- wouldn't find incorporation of IT difficult at all now
- can see children planning, performing and recording their work
- can see uses for video recording in her oral language programme
- parents could see what was happening in the arts
- children could assess their own work in oral language
- they would get a better idea of where they needed to improve
- could video visits and children could do flowcharts and follow up activities from the footage